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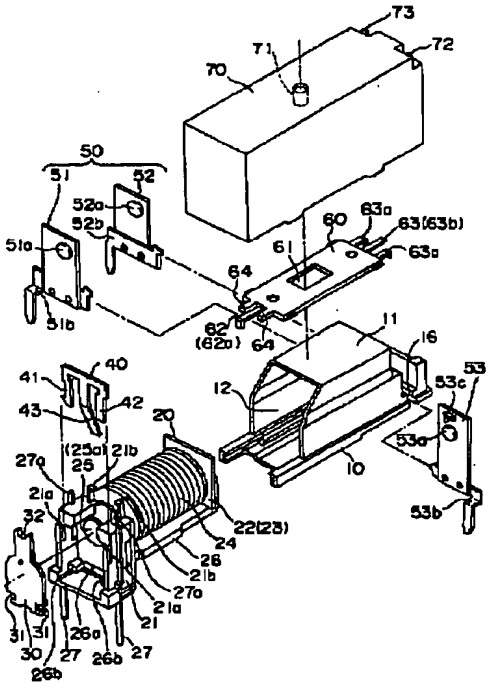
(54)【考案の名称】　電磁継電器

(57)【要約】　（修正有）

【目的】　部品点数が少なく、調整作業が容易で生産性が高い電磁継電器を提供する。

【構成】　一方側の開口部を絶縁壁で密閉された空洞部１２を形成する枠体１１を上面に一体成形したベース１０と、ベース１０の空洞部１２に挿入，固定された電磁石部２０と、磁極部２５ａを露出する電磁石部２０の一端側に回動可能に組み付けられた可動鉄片３０と、絶縁壁を間にして電磁石部２０の他端側に設けられた接点機構部５０と、可動鉄片３０の自由端部と接点機構部５０の可動接触片５３とに両端部を連結され、スライド移動可能に支持されたカード６０とからなり、電磁石部２０の励磁，消磁に基づいて回動する可動鉄片３０で前記カード６０をスライド移動させて接点機構部５０を駆動する構成とすることにより、電磁石部２０と接点機構部５０とをベース１０に一体に設けた枠体１１で仕切るとともに、可動鉄片３０等の可動構成部品を露出させたものである。



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【実用新案登録請求の範囲】

【請求項1】　一方側の開口部を絶縁壁で密閉された空洞部を形成する枠体を上面に一体成形したベースと、鉄芯にスプールを介してコイルを巻回して形成され、前記鉄芯の磁極部を露出するように前記ベースの空洞部に挿入，固定された電磁石部と、前記磁極部を露出する電磁石部の一端側に回動可能に組み付けられた可動鉄片と、前記ベースの絶縁壁を間にして前記電磁石部の他端側に設けられた接点機構部と、前記可動鉄片の自由端部と前記接点機構部の可動接触片とに両端部を連結され、スライド移動可能に支持されたカードとからなり、前記電磁石部の励磁，消磁に基づいて回動する前記可動鉄片で前記カードをスライド移動させて前記接点機構部を駆動することを特徴とする電磁継電器。

【図面の簡単な説明】

【図1】　本実施例にかかる電磁継電器の分解斜視図である。

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【図2】　本実施例にかかる電磁継電器の断面図である。

【図3】　本実施例にかかる電磁継電器の組立説明図である。

【図4】　本実施例にかかる電磁継電器の要部拡大斜視図である。

【図5】　本実施例にかかる電磁継電器の要部拡大斜視図である。

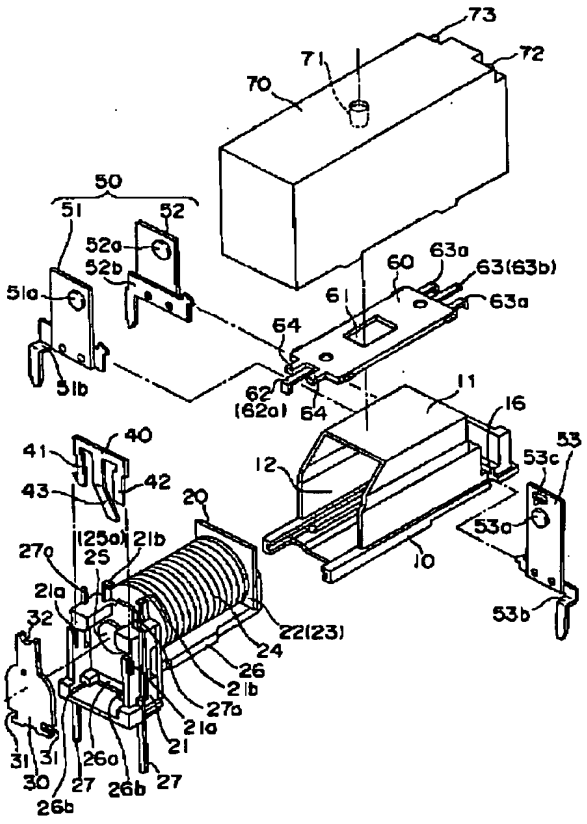
【図6】　従来例にかかる電磁継電器の断面図である。

【図7】　従来例にかかる電磁継電器の可動接触片を示す正面図である。

【符号の説明】

１０…ベース、１１…枠体、１２…空洞部、１３…絶縁壁、２０…電磁石部、２３…スプール、２４…コイル、２５…鉄芯、２５ａ…磁極部、３０…可動鉄片、５０…接点機構部、５３…可動接触片、６０…カード。

【図1】

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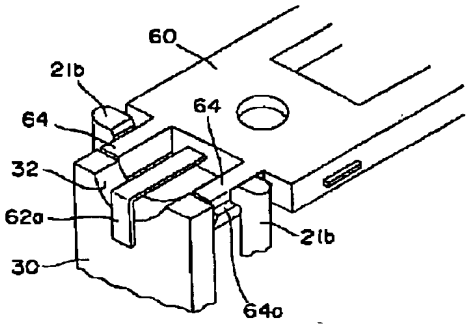
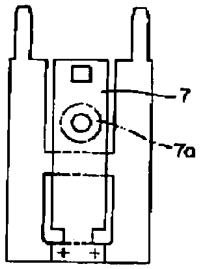



【図7】

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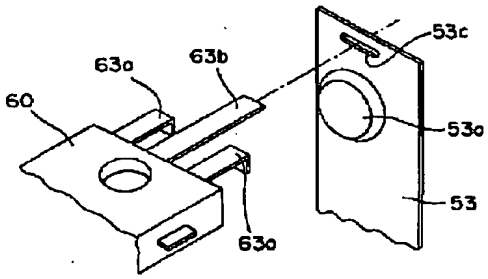

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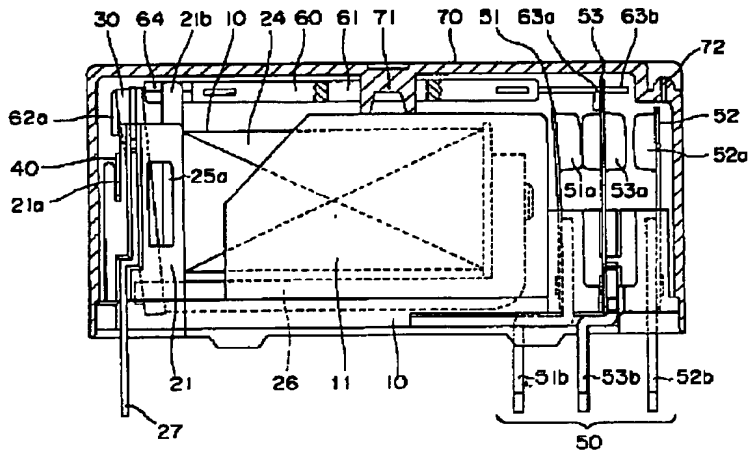
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64
21b
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24
60
61
71
70
51
63a
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63b
72
62a
52
52a
40
25a
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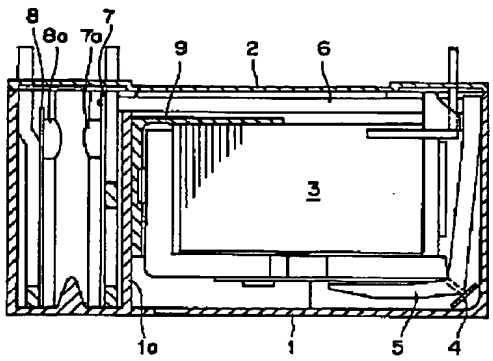
51a
53a
21
26
11
10
51b
53b
52b
27
50

【図6】


8
8a
7a
7
9
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6
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1a
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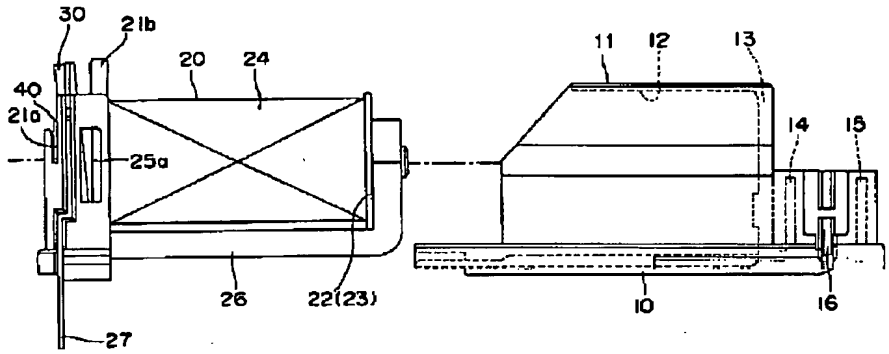
【図3】


30
21b
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21a
25a
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22(23)
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Utility model application publication number
Japanese Utility Model Laid-Open No. 4-119947

TITLE OF THE INVENTION

An electromagnetic relay

ABSTRACT

[ PURPOSE]

The electromagnetic relay that there is a little parts count, and a regulation operation is easy, and productivity is high is provided.

CONSTITUTION

From base 10 which on earth molded frame 11 which formed hollow 12 sealed up an aperture of one side in insulating wall as a top face and electromagnet 20 fixed insertion to hollow 12 of base 10 and moving iron 30 which it was crossed pivotably, and was touched to a one end side of electromagnet 20 that exposed magnetic pole part 25a and contact mechanism part 50 which insulating wall was done between, and was installed in another end side of electromagnet 20 and card 60 which it was coupled an ends to free end portion of moving iron 30 and contact segment 53 which drove of contact mechanism part 50, and was supported by slide migration ability, it was partitioned off with frame 11 which it was at one, and provided electromagnet 20 and contact mechanism part 50 to base 10 by what was done with configuration a slide moved card 60 with moving iron 30 excitation of electromagnet 20, degaussing were based on, and to pivot, and to drive contact mechanism part 50, and it made expose the component part which drove of the 30th class moving iron.

CLAIM FOR THE UTILITY MODEL REGISTRATION

1. A slide moves an above card in above moving iron excitation of electromagnet part, degaussing are based on, and to pivot, and an

above contact mechanism part is driven, and it is an electromagnetic relay including the following;

the base which on earth molded the frame which formed a hollow sealed up an aperture of one side in insulating wall as a top face,

the electromagnet part which it is fixed insertion to a hollow of an above base electric coil is wound around an iron core through a spool, and it is formed, and to expose a magnetic pole part of an above iron core,

the moving iron which it was crossed pivotably, and was touched to a full-fledged side of the electromagnet part which exposed said magnetic pole part,

the contact mechanism part which insulating wall of said base was done between, and was installed in another end side of said electromagnet part,

is coupled an ends to a free end portion of said moving iron and movable contact segment of said contact mechanism part, it is a card supported by slide migration ability.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is an exploded perspective view of an electromagnetic relay working in the present embodiment.

FIG. 2 is a sectional view of an electromagnetic relay working in the present embodiment.

Figure 3 is an assembly illustration of an electromagnetic relay working in the present embodiment.

FIG. 4 is characterizing clause enlarged perspective diagram of an electromagnetic relay working in the present embodiment.

FIG. 5 is characterizing clause enlarged perspective diagram of an electromagnetic relay working in the present embodiment.

FIG. 6 is a sectional view of an electromagnetic relay working in conventional embodiment.

FIG. 7 is front elevation showing movable contact segment of an electromagnetic relay hanging in conventional embodiment.

DENOTATION OF REFERENCE NUMERALS

Ten ... bases,

11 ... frames,

12 ... hollows,

13 ... insulating wall,

20 ... electromagnet,

23 ... spool,

24 ... electric coil,

25 ... iron cores,

A 25a ... magnetic pole part,

30 ... moving iron,

50 ... contact mechanisms part,

53 ... movable contact segment,

60 ... cards.

FIG. 1

FIG. 4

FIG. 7

FIG. 5

FIG. 2

FIG. 6

FIG. 3

DETAILED DESCRIPTION OF THE INVENTION

[ 0001]

INDUSTRIAL APPLICATION FIELD

As for the present invention, an electromagnetic relay relates to insulation structure of electromagnet part in particular.

[ 0002]

PRIOR ART

For example, it is short, and, for an electromagnetic relay, there is the thing which can find long distance for insulation like description in the 2167902nd British patent specification conventionally.

In other words it did partition 1a which protruded from a bottom face of retaining shield 1 between, and it crossed 7, movable contact segment fixing contact segment 8, and a one end side of electromagnet 3 could be accompanied while storing fixed electromagnet 3 where it went through hinge spring 4 and crossed moving iron 5 of a letter of generally L type face pivotably, and was able to be accompanied in box type retaining shield 1 as shown in figure 6 and figure 7 and supported to cut card 6 coupled an ends to moving iron 5 and movable contact segment 7 by slide migration.

Further insulation materials 9 is installed to a one side of electromagnet 3 to plan electromagnet 3 and movable contact segment 7 and isolation with fixing contact segment 8.

[ 0003]

And a free end portion of moving iron 5 presses a one end side of card 6 when it is based on excitation of electromagnet 3, degaussing, and moving iron 5 pivots, it makes a slide moves, and pressed card 6 presses the upper end of driving contact segment 7 and pivot, traveling contact 7a touches fixed contact 8a.

[ 0004]

PROBLEM TO BE SOLVED BY THE INVENTION

However, because it crosses retaining shield 1 and insulation materials 9 of an anomalous style between electromagnet 3 and movable contact segment 7 and must be able to be accompanied to secure long distance for insulation according to the above-mentioned electromagnetic relay, there is much parts count, and there is much assembly man-hour.

Besides, after having incorporated an interior component part like electromagnet 3 in box type retaining shield 1, because it is not is a row rope by a regulation operation, can kick, the point that can adjust is limited, trouble suffered from a regulation operation, and there were problems to be low productivity.

[ 0005]

Thus the present invention takes warning by the problems, there is a little parts count and a regulation operation is easy and is directed to that productivity provides a high electromagnetic relay.

[ 0006]

MEANS TO SOLVE THE PROBLEM

Spool is gone through, and electric coil is wound around a base and the iron core which on earth molded a frame forming a hollow glued in insulating wall as a top face, and, as for the electromagnetic relay hanging in the present invention, is formed an aperture of one side to accomplish the purpose, is coupled an ends to the contact mechanism part which the moving iron which it is crossed pivotably, and was touched to a one end side of the electromagnet part which exposes insertion, a fixed electromagnet part and the magnetic pole part to a hollow of the base to expose a magnetic pole part of the iron core and insulating wall of the base are done between, and was installed in another end side of the

electromagnet part and a free end portion of the moving iron and movable contact segment of the contact mechanism part, it was done with configuration a slide moved the card in the moving iron excitation of the electromagnet part, degaussing were based on from a card supported by slide migration ability, and to pivot, and to drive the contact mechanism part.

[ 0007]

[ action and an effect of device]

Thus, electromagnet part goes through the cylindrical base which glued one side in insulating wall of an aperture, and, according to the present invention, it is broken by a contact mechanism part. Because it crosses insulation materials comprising anomalous styles like an electromagnetic relay hanging in conventional embodiment and can be accompanied, it is not necessary this purpose according to the present invention, parts count decreases, assembly man-hour decreases.

Besides, because, according to the present invention, moving iron, most of a movable component part such as a card expose, trouble does not suffer from a regulation operation, productivity is effective in improving.

[ 0008]

EXAMPLE

It gives explanation that it is FIG. 1 about one embodiment to hang in the present invention as follows.

[ 0009]

It is from electromagnet 20 where an electromagnetic relay hanging in the present embodiment goes through profile, base 10 and hinge spring 40 and crosses moving iron 30, and was able to be accompanied and contact mechanism part 50 and sliding card 60 and retaining shield 70.

[ 0010]

With the thing which on earth base 10 molds frame 11 of cross section abbreviation Coe type face as top face central part, and formed hollow 12, depths side aperture of this hollow 12 is glued with insulating wall part 13 of frame 11.

Further it is provided press fit channel 14,15,16 which it crosses and can be accompanied, and can comprise contact mechanism part 50 in the shape of chessboard patterns with the 53rd class driving contact segment which base 10 is described below to the part which is located to an appearance side of insulating wall 13 alternately by lateral.

[ 0011]

Electromagnet 20, winds electric coil 24 around trunk (not shown) of spool 23 having brim part 21,22 to an ends, it inserts iron core 25 of a letter of cross section abbreviation T shape into breakthrough (not shown) that it provided to the trunk, it does a one end to expose from a face of brim part 21 with magnetic pole part 25a, it caulked and fixed the another end part which protruded from brim part 22 to vertical part of York 26 which did bending in generally L type face.

[ 0012]

York 26 makes both sides edge of the level apical surface 26a protrude and forms positioning projection 26b, 26b, it protrudes from a face of brim part 21 in this positioning projection 26b, 26b.

[ 0013]

Brim part 21 of spool 23 comprises slit 21a, 21a which stop hinge spring 40 to be described below by connecting it to the face both sides edge and protrudes from the upper end surface in guiding protrusion 21b of a couple having a reverse L type face, 21b.

Further,

Brim part 21 of spool 23 forcibly inserts coil terminals 27,27 into the opposed edge side from lateral, is fixed, call out of electric coil 24 is gathered up in binding part 27a which is located in the upper end of coil terminals 27, and is done soldering.

[ 0014]

It crosses, and stick to face central part of brim part 21, and moving iron 30 comprises possible planar shape, it provides positioning notch cutting part 31,31 in both sides edge of a lower end neighborhood, and is provided notch cutting part 32 of half circle in the upper end surface.

[ 0015]

And,

When notch cutting part 31,31 are engaged with positioning projection 26b of York 26, 26b respectively, moving iron 30 faces in magnetic pole part 25a of iron core 25 so that a junction and isolation are possible.

[ 0016]

When press fit fixes arm 41,42 of both sides to slit 21a of spool 23, 21a from letter of thin plate spring materials having a face abbreviation E type face hinge spring 40, long tongue section 43 extending from central part presses the back face lower end of moving iron 30, is supported a hinge moving iron 30 as supporting point in level apical surface 26a of York 26 pivotably.

[ 0017]

And it is at one and crosses, and it is touched by inserting electromagnet 20 where it crosses moving iron 30 through hinge spring 40, and was able to be accompanied into hollow 12 of base 10 from lateral.

According to the present embodiment, a back side of moving iron 30 can use dead tooth-space to produce effectively by arranging hinge

spring 40 for the back lower end of moving iron 30, it is advantageous in that it can plan miniaturization of equipment.

[ 0018]

As for marking mechanism part 50, as for traveling contact 53a of fixed contact 51a of fixing contact segment 51,52, 52a and movable contact segment 53, only prescribed spacing is installed in the position that an eccentricity did from a central line of width orientation of each contact segment with a pair of state contact segment 51,52 and the thing that it is from movable contact segment 53.

Because of this because it twists, and a moment acts on as well as bending moment in contact 51a, 52a, 53a, too, welding characteristics resistance are preferable.

Besides, because a contact is installed in the position that did eccentricity from a central line of the part which fixed contact segment to a terminal portion, substantial availability spring length of each contact segment gets longer, it is advantageous in that a short electrical machinery electric relay can be got.

Further movable contact segment 53 comprises guiding aperture 53c in the one side on traveling contact 53a.

In addition, it thinks about a material final performance, and break and may comprise bent form without limiting to the thing that fixed contact segment 51,52, movable contact segment 53 are going straight on.

[ 0019]

And, by fixed terminal area 51b of contact segment 51,52, 52b and a thing forcibly inserting into press fit slit 14,15,16 which provided terminal area 53b of movable contact segment 53 to base 10 from lateral in the shape of chessboard patterns alternately, it does traveling contact 53a between, and fixed contact 51a, 52a

face.

According to the present embodiment, fixed contact segment 51,52, movable contact segment 53 are forcibly inserted into press fit channel 14,15,16 of base 10 from lateral in the shape of chessboard patterns alternately, because is fixed, distance for insulation between terminal area can be lengthened, and a width dimension of movable contact segment 53 can be raised, even if large current is drained, it is advantageous in that there are a few temperature rises.

[ 0020]

Sliding card 60 comprises fit aperture 61 of rectangle from deal made by synthetic resin of a plane path rectangle in the central part, an insert molding did engaging metal fitting 62,63 to a both sides edge.

And sliding card 60 installs a pair of driving projections 64,64 in a protruding manner from one end, it protrudes from the other end in long tongue section 63b which is located in detent projection 63a, 63a and the meantime to press of engaging 63, Kanami while it protrudes from the meantime in position specification use detent projection 62a of person in charge alloying ingredient 62.

[ 0021]

And it inserts long tongue section 63b of sliding card 60 into guiding aperture 53c of movable contact segment 53, it positions position specification use detent projection 62a to notch cutting part 32 of moving iron 30 while it presses contact segment 53 driving in detent projection 63a, 63a to press , as shown in FIG. 4, guide protrusion 21b, 21b stop by connecting it to stepped portion 64a (the back side does not illustrate) of projection 64,64 in one touch when they push projection 64,64 of sliding card 60 between guiding protrusion 21b of spool 23, 21b, card 60 can slide, and is supported.

Because, according to the present embodiment, is assumed an insert

molding with engaging metal fitting 62,63 to an ends of card 60, even if it is hard to produce heat transformation and warpage, and a slide moves to card 60, a poor contact by abrasion powder does not produce without abrasion powder producing.

Besides, it is hard to do thermofusion and is advantageous in that productivity improves in assembling being easy.

[ 0022]

Retaining shield 70 comprises a letter of engageable box type to base 10, toric projection 71 can be turned to inside, and the ceiling plane central part is protruded from.

Further retaining shield 70 comprises vent hole 72 to a top face corner and it is occupied and comprises protrusion 73 forming vent hole to outrun the nitric acid gas which it produced by it breaks, and taking.

[ 0023]

And the lower end of projection 71 goes through fit aperture 61 of card 60, and it is made abut on a top face of frame 11 of base 10 when retaining shield 70 is fitted into base 10 which an interior component like electromagnet 20 is crossed, and was able to be accompanied (FIG. 2).

And injection solidifies sealing compound (not shown) in a bottom face of base 10 and seals, after having outrun internal gas from vent hole 72, assembly operation completes by it makes it do thermofusion, and sealing up vent hole 72.

[ 0024]

Because it goes through projection 71, and, according to the present embodiment, retaining shield 70 is supported, even if an external force is added to a top of retaining shield 70, it is advantageous in that actuating of one mosquito 60 is not disturbed.

In addition, for example, form supporting retaining shield 70 may

provide a projection in a top face of frame 11 without limiting to the above-mentioned thing , in addition, a notch cutting part may be provided not fit aperture to card 60.

[ 0025]

It explains actuating of an electromagnetic relay comprising the above-mentioned configuration next.

Movable contact segment 53 is spring force of self, and electromagnet 10 is energized in FIG. 2 in the case of no excitation by left direction, traveling contact 53a touches fixed contact 51a.

[ 0026]

Moving iron 30 pivots so that magnetic pole part 25a of iron core 25 absorbs moving iron 30 when it applies voltage to electric coil 24 and excites electromagnet 10, it presses apical surface of projection 64,64 that the point provided to card 60.

Because of this sliding card 60 slides to the right direction in FIG. 2, it presses the upper end of contact segment 53 which detent projection 63a, 63a to press of card 60 drive.

As a result, movable contact segment 53 swings, it drains off, and traveling contact 53a is replaced from fixed contact 51a to fixed contact 52a.

[ 0027]

And movable contact segment 53 returns in spring force of self when it solves excitation of electromagnet 10, sliding card 60 is pushed back and traveling contact 53a cuts and takes place, it returns to an original condition.